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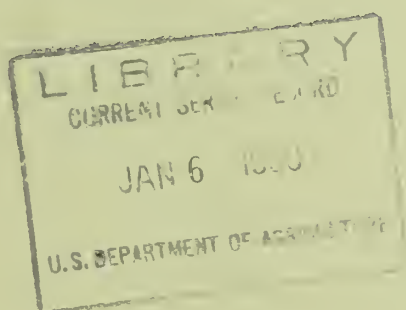
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FEDERAL-STATE COOPERATIVE SNOW SURVEYS and IRRIGATION WATER FORECASTS

for
ARIZONA

January 15, 1949



by
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture

Data included in this report were obtained by the agency named above in cooperation with the Federal, State, and local organizations listed on the last page of this report.

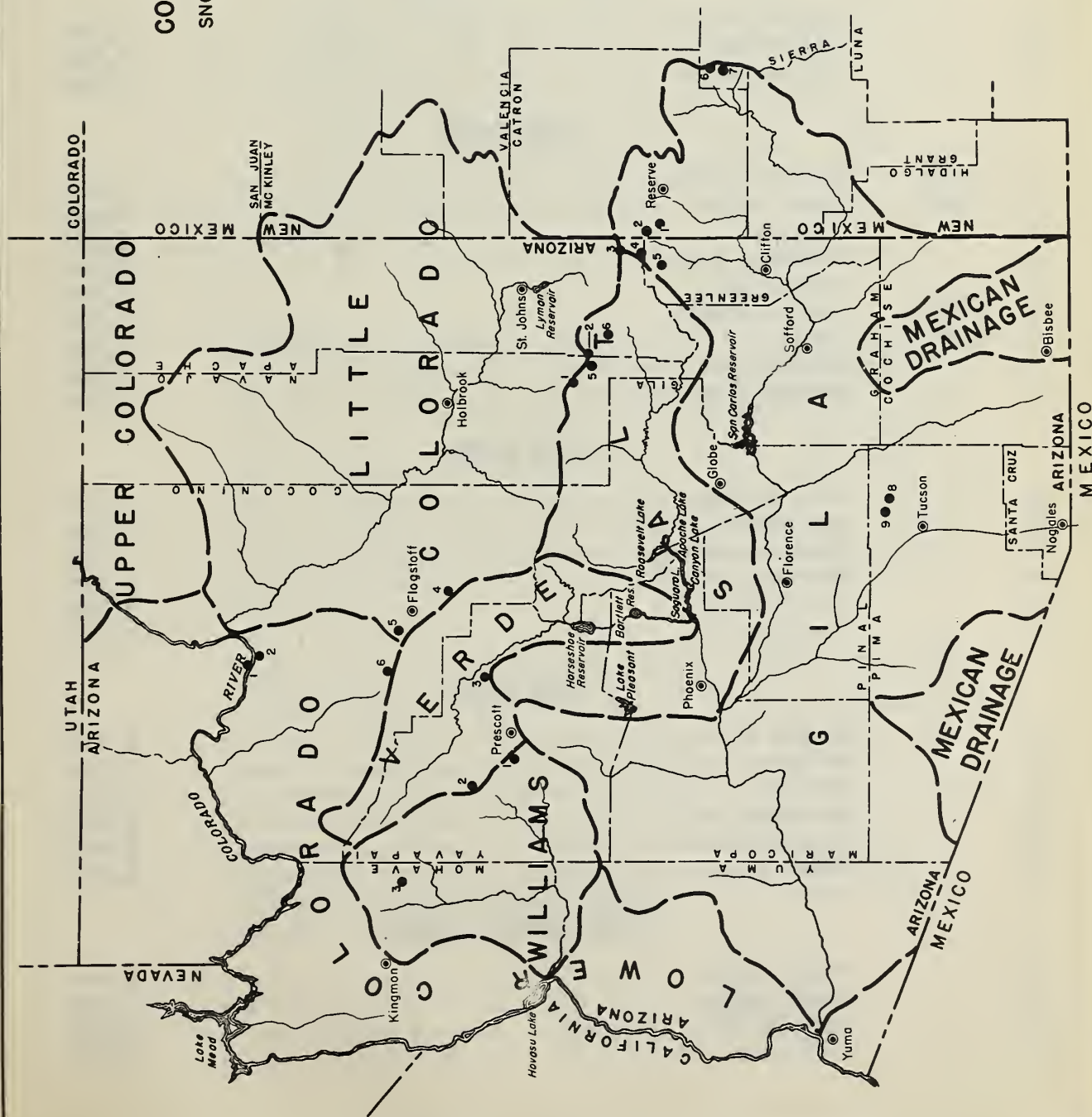
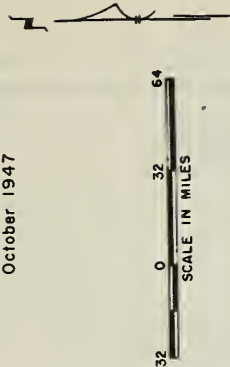
FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR
ARIZONA

Report Prepared
by
Clyde Houston-Irrigation Engineer

Division of Irrigation
Soil Conservation Service
Reno, Nevada

ARIZONA COOPERATIVE SNOW SURVEYS SNOW COURSES AND DRAINAGE BASINS

October 1947



INDEX TO SNOW COURSES

NUMBER	NAME	ELEVATION
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LITTLE COLORADO RIVER

1.	Forest Dale	6,000
2.	McNary	7,200
3.	Nutrioso	8,500
4.	Mormon Lake	7,350
5.	Fort Valley	7,350

WILLIAMS RIVER

1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Willow Ranch	5,000

GILA RIVER

1.	(N.M.) Frisco Divide	8,000
2.	(N.M.) State Line	8,000
3.	Nutrioso	8,500
4.	Coronado Trail	8,000
5.	Beaver Head	8,000
6.	(N.M.) Taylor Creek	7,850
7.	(N.M.) Imman	7,800
8.	Rose Canyon	7,300
9.	Bear Wallow	8,100

VERDE RIVER

1.	Iron Springs	6,200
2.	Camp Wood	5,700
3.	Mingus Mountain	7,100
4.	Mormon Lake	7,350
5.	Fort Valley	7,350
6.	Chalender	7,100

SALT RIVER

1.	Forest Dale	6,000
2.	McNary	7,200
3.	Nutrioso	8,500
4.	Coronado Trail	8,000
5.	Milk Ranch	7,000
6.	McKay	8,250

LOWER COLORADO RIVER

1.	Bright Angel	8,400
2.	Grand Canyon	7,500
5.	Fort Valley	7,350
6.	Chalender	7,100

WATER SUPPLY OUTLOOK

Arizona

January 15, 1949

* * * * *
* January 15, 1949 snow surveys indicate a let- *
* up in the prolonged Arizona drought. Snow *
* stored water in the mountains is about twice *
* normal on this date. Late fall storms re- *
* sulted in near normal and above normal run- *
* off from major streams. As of this date *
* over all storage in Arizona reservoirs has *
* reversed the six year diminishing trend and *
* storage has again started to increase. Con- *
* tinued storms will build up the snow pack to *
* the extent that the drought can be consider- *
* ed at an end. *
* * * * *

Precipitation Slightly greater than average precipitation occurred throughout Arizona during the period October through December. During the first half of January precipitation has been general over the State. Early in the month the higher elevations received a heavy snow cover along with low temperatures. Later rains and higher temperatures melted much of the low snow and produced abnormally high streamflow in some areas. Soil moisture conditions throughout the State are good. Reports from higher elevations indicate that soils are saturated.

Snow Cover January 15 snow surveys indicate that snow stored water on practically all watersheds of the State, is above normal. On the headwaters of Little Colorado and Salt Rivers it is about 200 percent of average and about 6 times last years extreme low. Gila River Watershed contains about 220 percent of average and about 5 times last year. Abnormally heavy storms during this snow survey period have isolated some areas on the Upper Gila and Williams River Watersheds to the extent that snow surveyors have been unable to report their results to headquarters.

Runoff October through December 1948, discharge of Verde and Salt Rivers was about 90 percent of the median. For the same period Gila and Little Colorado was about 115 and 170 percent respectively. The heavy storms of early January produced above normal streamflow. Discharge of the Blue River, a tributary of the Gila, neared flood stage as did the Upper Gila near Duncan, Arizona.

Reservoir Storage It appears that the downward trend of storage in Arizona reservoirs has ceased and with continued precipitation the trend will be upward. As of January 15 Lake Pleasant contained 7,000 acre feet or less than 50 percent of the 1938-47 average for this date. This is the greatest amount in storage on this date since 1942. Bartlett and Horseshoe Reservoirs on the Verde contained 51,000 acre feet. Although this amount is only about 20 percent of capacity it is the greatest amount stored on this date since 1942. The series of reservoirs on Salt River contained 227,000 acre feet compared to 228,000 acre feet last year. Until this year storage in these reservoirs has been continually dropping about 200,000 acre feet per year since 1942. San Carlos contained 32,000 acre feet which is the greatest in storage on this date since 1945. This reservoir has also been dropping since 1942. Lake Mead stored 19,489,000 acre feet which is slightly less than last years 20,000,000.

[illegible]

It was found that the amount of stored fish in the lake had increased since 1945. This was due to the fact that the lake had been stocked with fish since 1945. The amount of stored fish in the lake had increased since 1945. This was due to the fact that the lake had been stocked with fish since 1945. The amount of stored fish in the lake had increased since 1945. This was due to the fact that the lake had been stocked with fish since 1945.

TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1949

LOCATION		SNOW COVER MEASUREMENTS										
		Water Content (Inches)					Past Record					
DRAINAGE BASIN and SNOW COURSE	Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	1949	1948	1947	Years of Record	Av. Water Content (Inches)
LITTLE COLORADO RIVER												
Forest Dale	1	2	9N	21E	6000	1/14	5.5	1.4	0.4	1.5	9	1.0
McNary	2	14	8N	23E	7200	1/14	8.9	3.3	0.3	2.5	9	2.2
Nutriosio	3	23	6N	30E	8500	1/14	17.9	4.9	0.7	1.6	9	1.7
Mormon Lake	4	13	18N	8E	7350	1/15	39.0	10.3	0	2.7	2	1.4
Fort Valley	5	22	22N	6E	7350	1/14	28.7	6.1	0.4	1.6	2	1.0
WILLIAMS RIVER												
Iron Springs	1	22	14N	3W	6200	1/15	16.6	5.2	0	0	3	0.4
Camp Wood	2	3	16N	6W	5700	1/15	21.1	4.9	0	0	3	0.1
Willow Ranch	3	16	21N	11W	5000		No Report		0	0	3	0
GILA RIVER												
Frisco Divide	1	31	6S	20W	8000	1/15	9.8	3.1	1.1	0.6	9	1.5
State Line	2	6	6S	21W	8000	1/14	12.9	3.5	0.7	1.4	9	2.2
Nutriosio	3	23	6N	30E	8500	1/14	17.9	4.9	0.7	1.6	9	1.7
Coronado Trail	4	26	5N	30E	8000	1/14	20.9	6.2	1.2	1.8	9	2.6
Beaver Head	5	13	4N	30E	8000		No Report		1.2	1.1	9	2.6
Taylor Creek	6	20	10S	10W	7850		"	"	0	0.9	5	0.7
Inman	7	6	11S	10W	7800		"	"	0	0.9	2	0.5
Rose Canyon	8	15	12S	16E	7300	1/14	0	0	0	New Course		
Bear Wallow	9	6	12S	16E	8100	1/14	14.8	4.5	0	"		

TABLE I

ARIZONA SNOW SURVEYS JANUARY 15, 1949

LOCATION		SNOW COVER MEASUREMENTS												
		Water Content (Inches)					Past Record							
DRAINAGE BASIN and SNOW COURSE		Number	Sec.	Twp.	Rge.	Elev.	Date of Survey	Snow Depth (Inches)	1949	1948	1947	Years of Record	Av. Water Content (Inches)	
VERDE RIVER														
Iron Springs	1	22		14N	3W	6200	1/15	16.6	5.2	0	0	3	0.4	
Camp Wood	2	3		16N	6W	5700	1/15	21.1	4.9	0	0	3	0.1	
Mingus Mountain	3	3		15N	2E	7100	1/15	18.9	4.3	0	0.1	2	0.1	
Mormon Lake	4	13		18N	8E	7350	1/15	39.0	10.3	0	2.7	2	1.4	
Fort Valley	5	22		22N	6E	7350	1/14	28.7	6.1	0	1.6	2	1.0	
Chalender	6	27		22N	3E	7100	1/15	30.2	7.2	0	1.3	2	1.8	
SALT RIVER														
Forest Dale	1	2		9N	21E	6000	1/14	5.5	1.4	0.4	1.5	9	1.0	
McNary	2	14		8N	23E	7200	1/14	8.9	3.3	0.3	2.5	9	2.2	
Nutriosio	3	23		6N	30E	8500	1/14	17.9	4.9	0.7	1.6	9	1.7	
Coronado Trail	4	26		5N	30E	8000	1/14	20.9	6.2	1.2	1.8	9	2.6	
Milk Ranch	5	28		8N	23E	7000	1/14	4.8	1.2	0	1.9	8	1.3	
LOWER COLORADO RIVER														
Bright Angel	1	34		33N	3E	8400	1/15	37.5	8.4	4.6	New Course			
Grand Canyon	2	21		30N	4E	7500	1/15	29.7	5.4	0.6	" "			
Fort Valley	5	22		22N	6E	7350	1/14	28.7	6.1	0.4	1.6	2	1.0	
Chalender	6	27		22N	3E	7100	1/15	30.2	7.2	2.3	1.3	2	1.8	

TABLE 2
STATUS OF RESERVOIR STORAGE, January 15, 1949

BASIN and STREAM	RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE				About Jan. 15 10-Yr. Avg. 1938 - 1947
			1949	1948	1947	1946	
Agua Fria	Lake Pleasant	179	7	1	3	3	16
Colorado	Lake Havasu	688	592	582	602	572	516 ^a
Colorado	Lake Mead	27,935	19,489	20,320	17,603	19,908	20,583 ^a
Gila	San Carlos	1,200	32	0	14	18	201
Salt River	Salt River ^c	1,771	227	228	426	721	741
Verde	Bartlett	179	34	5	38	7	47 ^b
Verde	Horseshoe	67	17	2	10	10	New

a - Average for years 1939 through 1947

b - Average for years 1941 through 1947

c - Includes Roosevelt, Apache, Saguaro and Canyon Lakes

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LIST OF SNOW SURVEYORS

<u>SNOW COURSE</u>	<u>SURVEYOR</u>
Forest Dale	Fair & Schroeder
McNary	Fair & Schroeder
Nutriosos	R. L. Diggs
Mormon Lake	M. F. Greaves
Fort Valley	A. P. Loska
Iron Springs	E. Saxby
Camp Wood	C. C. Merritt
Frisco Divide	Earl & Diggs
State Line.	Dean Earl & Della Earl
Coronado Trail.	Diggs & Earl
Rose Canyon	Wm. Hughes
Bear Wallow	Wm. Hughes
Mingus Mountain	Harold Linn
Chalender	Schroeder & Rogers
Milk Ranch	Fair & Schroeder
Bright Angel	S. Brown & J. Brown
Grand Canyon	Fred Brueck

Item	Quantity	Unit	Price	Total
1. 100 lbs. of No. 1	100	lbs.	1.00	100.00
2. 50 lbs. of No. 2	50	lbs.	.80	40.00
3. 25 lbs. of No. 3	25	lbs.	.60	15.00
4. 10 lbs. of No. 4	10	lbs.	.40	4.00
5. 5 lbs. of No. 5	5	lbs.	.20	1.00
6. 100 lbs. of No. 6	100	lbs.	1.20	120.00
7. 50 lbs. of No. 7	50	lbs.	.90	45.00
8. 25 lbs. of No. 8	25	lbs.	.70	17.50
9. 10 lbs. of No. 9	10	lbs.	.50	5.00
10. 5 lbs. of No. 10	5	lbs.	.30	1.50
11. 100 lbs. of No. 11	100	lbs.	1.10	110.00
12. 50 lbs. of No. 12	50	lbs.	.85	42.50
13. 25 lbs. of No. 13	25	lbs.	.65	16.25
14. 10 lbs. of No. 14	10	lbs.	.45	4.50
15. 5 lbs. of No. 15	5	lbs.	.25	1.25
16. 100 lbs. of No. 16	100	lbs.	1.30	130.00
17. 50 lbs. of No. 17	50	lbs.	.95	47.50
18. 25 lbs. of No. 18	25	lbs.	.75	18.75
19. 10 lbs. of No. 19	10	lbs.	.55	5.50
20. 5 lbs. of No. 20	5	lbs.	.35	1.75

The following organizations cooperate in the Arizona snow survey work:

STATE

Nevada Agricultural Experiment Station
Reno, Nevada

FEDERAL

Department of Agriculture
Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Southwestern Forest and Range Expt.
Station, Fort Valley, Arizona
Soil Conservation Service
Division of Irrigation

Department of Commerce
Weather Bureau
Arizona Section

Department of Interior
Bureau of Reclamation
Region III
Geological Survey
Arizona District
Indian Service
Fort Apache Reservation
National Park Service
Grand Canyon National Park

Gila Water Commissioner
Safford, Arizona

IRRIGATION PROJECTS

Salt River Valley Water Users Association
Phoenix, Arizona

San Carlos Irrigation and Drainage District
Coolidge, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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